

Utility Interconnection Equipment Certification

The information on this form is provided to indicate the compliance of the generation equipment listed below with the utility interconnection certification requirements defined in California PUC Electric Rule 21

Certifying Laboratory *The information on this form is provided by the following Nationally Recognized Test Laboratory*

Laboratory: Underwriters Laboratories Inc.

Contact Name: Adalberto Margarito Phone: (408)754-6607

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Address: 455 East Trimble Road

City: San Jose State: CA Zip 95131-1230

Accredited by: Underwriters Laboratories Inc. Date: _____

Accredited to (test standards)¹: UL1741

Laboratory: Nemko/ESSI

Contact Name: Mike Clark Phone: (858)793-9915

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Address: 11696 Sorrento Valley Road, Suite F

City: San Diego State: CA Zip 92121

Accredited by: Nemko Date: _____

Accredited to (test standards)²: IEEE C62.41/C62.45

Equipment Specification *The information on this form applies to the following equipment*

Equipment Manufacturer: Capstone Turbine Corp.

Address: 21211 Nordhoff St.

City: Chatsworth State CA Zip 91311

Model Number(s): Model 65, may be followed by C or R, may be followed by A, B, F, H, P or S, may be followed by G or D, may be followed by 4, may be followed by B, D, E, H, S or Z, may be followed by H or U, may be followed by 0, G or T, may be followed by 0 or U.

Software Version(s): 4.5

Effective³: December 02 2005

Device Description⁴:

65 kW MicroTurbine generator with integral protective relay functions

Model Capstone 60 and 65 C60 are identical in construction except for the model designation.

Models 60 with ICHP and 65 ICHP are identical in construction except for their models designation.

Test Results⁵

Mark the box next to each requirement that has been met and each test that has been performed and successfully passed. Provide an explanation of any exceptions or omissions on a separate sheet. List additional test documents used on a separate sheet

UL 1741: (Section number listed)

☒-39 ☐-40.1 ☒-41.2 ☒-44 ☒-45.2.2 ☒-45.4 ☒-45.5
☒-46.2 ☒-46.2.3 ☒-46.4 ☒-47.3 ☐-47.7 Optional: ☒-46.3

☒-IEEE/ANSI C62.45/C62.41 (location Category B3)

California Rule 21: ☐-J.3.e Non-export ☒-J.3.f In-Rush Current ☐-J.3.h Synchronization

Device Rating:⁶ Power Output – 65 kW, 83 kVA, 100 A per phase; Voltage – 400 – 480 VAC;
Frequency – 50/60 Hz: Phase – 3

Maximum available fault current: 70 A

In-rush current⁷, A: 47 A

Trip settings (Magnitude/Timing)⁸:

Protective Function		Setting	Factory Setting ⁹
Fast Over Voltage	Setting	531 V – 534 V/30 ms	600 V/30 ms delay
	Measured	32.0 ms – 34.0 ms	OV – 600 V/0.001 s – 1.000 s
Over Voltage	Setting	520 V – 528 V/1.9 s	524 V/1.9 s delay
	Measured	1.89 s – 1.99 s	UV – 528 V/0.01 s – 10.00 s
Fast Under Voltage	Setting	355 V – 330 V/95 ms	264 V/95 ms delay
	Measured	88.0 ms – 99.0 ms	UV – 0 V/0.001 s – 1.000s

Nominal Power Factor (Range, if adjustable) 1.0

Non Islanding: Yes x No Maximum trip time: 345 ms

Non Export: Yes No x Method:

Other¹⁰:

- 1 Accreditation must apply to test standards listed herein.
- 2 Accreditation must apply to test standards listed herein.
- 3 Note here the date of certification, applicable serial number (range or first in series), or other
4 information that indicates to which units the certification applies.
- 5 List appropriate functions, capabilities, applications, limitations, etc. Use additional sheets as
6 necessary.
- 7 List all test documents (i.e. UL 1741, IEEE C62.45) and specific procedures (i.e. UL 1741
8 Sec 39.1 – 39.5, etc.) used to evaluate device's suitability for utility interconnection
9 kW, kVA, V, A, etc., as appropriate.
- 10 For devices that use grid power to motor to speed.
- Enter trip magnitude, Voltage in volts or frequency in Hz, and trip timing, in cycles into each
square (Magnitude/Timing). Devices with adjustable settings shall provide test results over
the range of settings. For each test setting provide the setting values in the upper box and
measured results in the lower box. List device ranges, if adjustable. Show data for one phase
(greatest % difference between setting and measured magnitudes as well as the maximum
trip time for that setting). Provide data for all phases (on additional sheets) if measured trip
values for any two phases differ by more than 3% (for the same setting).
- Note standard factory settings. Provide Voltage/Timing or Frequency/Timing.
- Provide any additional information that may be useful in evaluating these results such as test
configurations, device settings used to meet requirements, etc. Use additional sheets if
necessary.

Notes:

Addendum to Test Results

UL1741 Exceptions:

Section 40.1 – This section is specifically intended for photovoltaic arrays, and as such is not applicable to the microturbine.

Section 47.7 – The microturbine does not have a bypass switch, and therefore this test is not applicable.

“New” Capstone MicroTurbine Catalog Numbering Structure

65 C - F G 4 - D U 0 0
I II III IV V VI VII VIII IX

I - Capstone Model Type:

65 = C65

II - System Type:

C = Combined Heat and Power

R = Recuperated

III – Fuel Type:

A = High Pressure Landfill Gas

B = High Pressure Digester or Medium BTU Gas

F = Low Pressure Natural Gas

H = High Pressure Natural Gas

P = High Pressure Commercial Propane

S = High Pressure High BTU Gas / (Raw Natural Gas)

IV – Control Function:

G = Grid Connect Only

D = Dual Mode(Grid connect and Stand Alone)

V – Voltage Output:

4 = 400- 480Vac, 50/60Hz

VI – Enclosure Type :

B = Outdoor Industrial Package

D = Outdoor ICHP Package – Cu Core

E = Outdoor ICHP Package – ASME Cu Core

H = Outdoor Industrial Package w/ additional manufacturer
weather protective features

S = Outdoor ICHP Package – ASME SS Core

Z = Outdoor Stainless Steel Package

VII – Listing Or Certification:

H = UL Certification

U = UL and Canadian UL Listing

VIII– Installed Options:

0 = No Installed Options

G = Gas Detection Options

T = Temperature & Gas Detection Option

IX – Additional Functionality

0 = No Installed Options

U = UTC Branded Product